

## **PRE-APPEAL BRIEF REQUEST FOR REVIEW**

### **I. Background**

The present application is directed to a reconfigurable antenna system having radiating elements that are each associated with at least a respective signal processing chain located in an antenna unit that is integral to the antenna. This arrangement, captured in various forms by pending claims 33-69, addresses the problem in the prior art of a beamforming operation being performed far from the antenna itself, for instance, positioned at the base of the antenna support tower.

Claims 33-69 are pending in this application, of which claims 33, 47, 61, 63, 64, and 68 are independent. In the final Office Action mailed July 30, 2009, claim 64 was rejected under 35 U.S.C. § 112, first paragraph, and claims 33-69 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over a combination of one or more of Judd, Buscaglia, Ylitalo, Rhodes, and Wang.

### **II. The 35 U.S.C. § 103(a) Rejection of Claims 33-69 As Being Unpatentable over a Combination of One or More of Judd, Buscaglia, Ylitalo, Rhodes, and Wang Is Legally Deficient**

No *prima facie* case of obviousness has been established with respect to claims 33-69 under 35 U.S.C. § 103(a). Specifically, Applicant has consistently maintained that Judd and Buscaglia, regardless of whether they are viewed individually or as a whole, fail to disclose “at least one module for weighting digital signals” that is integral to the antenna, as required by Applicant’s independent claims 33, 47, 61, 63, 64, and 68. See, e.g., Applicant’s Request for Reconsideration of Final Office Action filed October 28, 2009 at 5.

The Advisory Action essentially acknowledges that neither Judd nor Buscaglia disclose or render obvious “a module for weighting digital signals that is integral to [or

housed within the same housing as] the antenna," as recited in Applicant's independent claims 33, 47, 61, 63, 64, and 68. See Advisory Action at Continuation Sheet. To remedy this deficiency, the Advisory Action goes on to assert that

Ylitalo discloses at least one module for weighting digital signals the at least one module configured to apply at least a weighting coefficient to a digital signal (weighting means 306 as disclosed in Fig. 3 and further disclosed in col. 4 lines 4-7). Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the weighting means 306, CNTL 320 and RX 322 as disclosed by Ylitalo to be incorporated with the antenna as disclosed by Judd et al. at the digital IF signal 103 as disclosed in Fig. 4 in order to provide a more efficient frequency reuse by directing the antenna beams in the digital phasing of a complex vector form (see Ylitalo, col. 1 lines 34-39).<sup>1</sup>

Advisory Action at Continuation Sheet.

Importantly, regardless of whether Judd and Buscaglia disclose certain "processing devices" that may be located within the same housing as antenna, both Judd and Buscaglia disclose processing chains that are not located within, or even near, the antenna (e.g., signal processing circuitry 70, converters 60, 61 of Judd and central units (CU1-CU<sub>N</sub>) and processing sections (BSPP1-BSPP<sub>N</sub>) of Buscaglia). In order to support a *prima facie* case of obvious under 35 U.S.C. § 103(a), the Office Action must not only articulate why it would have been obvious to combine weighting means 306 of Ylitalo with the combination of Judd and Buscaglia (as it has attempted to do), but why it would have been obvious to combine the weighting means of Ylitalo as

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<sup>1</sup>The "digital IF portion 103" of Judd that the Advisory Action suggests would be a suitable place to combine the weighting means of Ylitalo is not disclosed as being located within the same housing of the antenna. According to Judd, "[t]he frequency converter circuitry 50 and digital converter circuitry 56 might also be incorporated within the active antenna at the 45 top of the tower" (which does not include "digital IF portion 103"). Judd at [0043].

“integral to [or housed within the same housing as] the antenna,” as recited in Applicant's independent claims 33, 47, 61, 63, 64, and 68. See M.P.E.P. § 2143.03 ([a]ll words in a claim must be considered in judging the patentability of that claim against the prior art”).

Even assuming, for argument's sake, that the weighting means of Ylitalo *could* be combined with the combination of Judd and Buscaglia, which Applicant does not necessarily concede, Judd actually teaches away from including beamforming control hardware (such as weighting means 306 of Ylitalo) within the antenna unit because the beamforming control features are defined by “filtering and signal processing circuitry,” which Judd expressly states is located separately from, and thus not “integral to” antenna. For example, Judd discloses that “[f]iltering and signal processing circuitry define digital band portions of the at least two service providers, and drive the antenna to define at least one individual beam for each individual service provider.” Judd at Abstract. The “filtering and signal processing circuitry,” which are illustrated in Fig. 4 as components 76 and 70, respectively, apply the beamforming parameters (such as “weighting” parameters) of individual service providers 77(T). Id. at [0039]. According to Judd, “signals are . . . passed back and forth between the tower top and the base of the tower and wherever the digital signal processing circuitry 70 is located. . . .” Judd at [0043]. Thus, regardless of whether the weighting means of Ylitalo *could* be combined with the combination of Judd and Buscaglia, Judd actually teaches away from including weighting means as “integral to [or housed within the same housing as] the antenna,” as required by Applicant's independent claims 33, 47, 61, 63, 64, and 68.

For at least the reasons outlined above, Judd, Buscaglia, and Ylitalo fail to disclose or render obvious “at least one module for weighting digital signals” that is integral to the antenna, as required by Applicant’s independent claims 33, 47, 61, 63, 64, and 68. Rhodes, which was cited only for its purported teaching of a “single optical link to convey telecommunications data as well as control data,” and Wang, which was cited only for its purported teaching of “downconverting RF signals,” fail to remedy the deficiencies of Judd, Buscaglia, and Ylitalo. Consequently, the Office Action fails to establish a *prima facie* case of obviousness with respect to independent claims 33, 47, 61, 63, 64, and 68, and claims 34-36, 38-46, 48-60, 62, 65-67, and 69 that depend therefrom. Accordingly, Applicant respectfully submits that the 35 U.S.C. § 103(a) rejections of claims 33-69 are legally deficient and should be withdrawn.

### **III. The Rejection Under 35 U.S.C. § 112 Is Unsupportable**

In rejecting claim 64, the final Office Action asserted that “[t]he Examiner cannot find support which defines the computer readable medium in applicant’s specification.” In response, Applicant pointed to an exemplary portion of Applicant’s written description for support of the claimed recitation of “computer-readable medium,” which states, in pertinent part, “[t]he invention . . . relates to . . . a computer product which can be loaded into the memory of at least an electronic device, for instance a micro-programmable device, and containing portions of software code for implementing the method according to the invention when the product is carried out on said device.” Request for Reconsideration at 2-3.

In response, the Advisory Action implicitly concedes that there is written description support for Applicant’s claimed computer-readable medium, stating:

The examiner respectfully submits that based on the written description in the specification, the examiner cannot determine whether the computer readable medium is a memory or a computer product which can be loaded into the memory. Since if the computer readable medium is the computer product which can be loaded into the memory may also raise 101 issues.

Advisory Action at Continuation Sheet. Thus, Applicant respectfully submits that the 35 U.S.C. § 112, first paragraph rejection of the claims is legally deficient and should be withdrawn.<sup>2</sup>

### **III. Conclusion**

In light of the above arguments and those presented in the previously filed responses, Applicant respectfully submits that the rejections under 35 U.S.C. § 103(a) and 35 U.S.C. § 112, first paragraph, are legally deficient, improper, and should be withdrawn.

In view of the foregoing remarks, Applicant respectfully requests that prosecution on the merits be reopened and the timely allowance of pending claims 33-69.

Please grant any extensions of time required to enter this Pre-Appeal Brief Request for Review and charge any additional required fees to our Deposit Account 06-0916.

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<sup>2</sup> In response to the Advisory Action's comments regarding "potential 101 issues," Applicant submits that these issues are prospective only and do not justify the present rejection. Moreover, claim 64 satisfies 35 U.S.C. § 101 because the M.P.E.P. has defined "functional descriptive material" as material which "consists of data structures and computer programs which impart functionality when employed as a computer component. M.P.E.P. § 2106.01 (Internal citations omitted). The M.P.E.P. continues, mandating that "[w]hen functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized." Id.